Tree growth.—DOUGLASS[30] hopes to find in tree growth an indicator that may be used for estimating rainfall, but the preliminary steps of his investigation are similar to those of botanical observers. Studying *Pinus ponderosa* grown in the northern plateau of Arizona, a semi-arid region where the amount of precipitation is almost certain to be the limiting factor of annual growth, his conclusions agree with those of KIRKWOOD in indicating the importance of the precipitation of the fall and winter months upon the amount of the increment of the succeeding growing season. Further, a most satisfactory explanation of double annual rings is found in the failure of fall and winter precipitation when the resulting spring drought is followed by the usual heavier rainfall of July and August. Sometimes when this drought is excessive, the later rains do not seem to be able to stimulate a late summer growth, and a very narrow single ring results. In a few instances DOUGLASS thinks that, for some unknown reason, there has been the entire suppression of one annual ring.

From measurements of annual rings, given in detail in a previous paper,[31] a growth record is obtained for the past five centuries. When this is plotted as a curve and a comparison made between an available rainfall record for the region extending back to 1867 and the portion of the growth curve for the corresponding period, there is found an agreement of 80 per cent, but we are warned that such an agreement is likely to obtain only for a dry climate. An effort to discover a regular periodicity in the growth rate is rather unsuccessful, although there seems to be some agreement with the sun-spot cycle of 11.4 years.—GEO. D. FULLER.

A hydrarch succession.—MATTHEWS[32] has reported on the study of the succession of plant associations occurring in the gradual filling up of a pond of some 16 acres in area situated in Perthshire, Scotland. Aquatic and marsh associations of the usual type are found, but with an unusual paucity of species. —GEO. D. FULLER.

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[30] DOUGLASS, A. E., A method of estimating rainfall by the growth of trees. Bull. Amer. Geogr. Soc. **46**:321–335. 1914.

[31] ——— Weather cycles in the growth of big trees. Month. Weather Rev. **37**:225–237. 1909.

[32] MATTHEWS, J. R., The White Moss Loch: a study in biotic succession. New Phytol. **13**:134–148. *figs. 2*. 1914.